THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method for obtaining a correction factor for measuring a concentration of gas in a liquid using a gas in liquid concentration measurement device, the method comprising:

obtaining the solubility threshold for the gas in the liquid;

ensuring that the device is calibrated for concentrations of about 0% gas in liquid and about 100% gas;

using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentrations versus actual concentration below the solubility threshold;

using the measured concentrations and the solubility threshold to fully define the first function and deducing a theoretical response at about the solubility threshold;

using the theoretical response at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration for the region above the solubility threshold; and

using the first function and the second function to generate the correction factor.

- 2. The method of claim 1 wherein sufficient measurements is one measurement between 0% and the solubility limit.
- The method of claim 1 wherein sufficient measurements is at least two measurements.
- 4. The method of claim 1 wherein the known actual gas concentrations are less than about half of the gas concentration at the solubility limit.

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- 5. The method of claim 1 wherein the first function and the second function are each linear.
- 6. The method of claim 1 wherein the correction factor is the difference between a value of the first function and an actual gas concentration corresponding to that value and the difference is recorded and applied to any measured concentrations corresponding to the value.
- 7. The he method of claim 1 wherein the correction factor is generated as the inverse functions of the first function and second function.
- 8. A method for obtaining a correction factor for measuring a concentration of gas in a liquid using a gas in liquid concentration measurement device, the method comprising:

obtaining the solubility threshold for the gas in the liquid;

ensuring that the device is calibrated for concentrations of about 0% gas in liquid and about 100% gas; using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentration versus actual concentration below the solubility threshold;

determining a measured concentration at about the solubility threshold;

using the measured concentration at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration above the solubility threshold; and using the first function and the second function to generate the correction factor.

- 9. The method of claim 8 wherein the measured concentration at about the solubility threshold is measured using the device.
- 10. The method of claim 8 wherein the measured concentration at about the solubility threshold is determined based on the first function.

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11. A method for preparing a concentration determining device for use to measure the concentration of a selected gas in a selected liquid, comprising:

obtaining a correction factor for measuring a concentration of gas in a liquid for the device by obtaining the solubility threshold for the selected gas in the selected liquid; ensuring that the device is calibrated for concentrations of about 0% selected gas in selected liquid and about 100% selected gas; using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentration versus actual concentration below the solubility threshold; determining a measured concentration at about the solubility threshold; using the measured concentration at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration above the solubility threshold; and using the first function and the second function to generate the correction factor; and

recording the correction factor for application to any measured results by the device.

- The method as defined in claim 11 wherein the correction factor is 12. plotted for the selected gas in the selected liquid.
- The method as defined in claim 11 wherein the correction factor is 13. included in a system for operating the device.
- A method for determining a concentration of a selected gas in a 14. selected liquid, the method comprising:

providing a device for determining gas in liquid concentrations;

using the device to obtain a concentration measurement of the selected gas in the selected liquid; and

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applying a correction factor to the concentration measurement to produce an output concentration measurement of the selected gas in the selected liquid, the correction factor being obtained by using a device similar to the device for determining gas in liquid concentrations and obtaining the solubility threshold for the selected gas in the selected liquid; ensuring that the similar device is calibrated for concentrations of about 0% selected gas in selected liquid and about 100% selected gas; using the similar device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentration versus actual concentration below the solubility threshold; determining a measured concentration at about the solubility threshold; using the measured concentration at about the solubility threshold; using the measured concentration at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration above the solubility threshold; and using the first function and the second function to generate the correction factor.

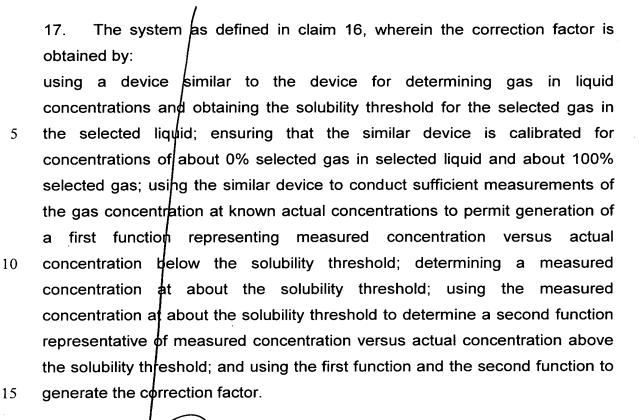
15. A method according to claim 14 wherein the device is a gas membrane device.

16. A system for controlling the operation of a device for determining gas in liquid concentrations comprising:

a function for obtaining a concentration measurement of a selected gas in a selected liquid:

a function for storing a correction factor for the selected gas in the selected liquid; and

a function for applying the correction factor to the concentration measurement to obtain an output measurement of the selected gas in the selected liquid.



- 18. The system as defined in claim 17, wherein correction factors for a plurality of gas/liquid mixtures are stored in the system and the system includes a function for selecting at least one of (a) a gas of interest and (b) a liquid of interest.
- 19. They system as defined in claim 17, wherein the correction factors for a plurality of emperature and/or pressure conditions are stored in the system and the system includes a function for selecting a correction factor for a selected temperature and/or pressure condition.



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